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ABSTRACT

Developmental trends in the effects of expectations regarding agent/action matches on judgments of sentence acceptability were investigated. Five sentences reflected expected relations ("harmonious") and five contradicted them ("contrary"). Twelve subjects each were in grades 4 through 8 during year 1; the same 60 subjects participated during year 2. Significant main effects were: expectation, with more harmonious sentences accepted; year, with the mean number of sentences accepted higher in year 1; and group, with the two older groups accepting fewer items. The group by expectation interaction was also significant: means of the three younger groups on harmonious sentences were higher than all other means. Changes in metalinguistic processes in evaluating sentence acceptability are suggested. (Author/CLK)

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A Developmental Study of Judgments of Grammatical Acceptability in Late Childhood and Early Adolescence

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A Developmental Study of Judgments of Grammatical Acceptability in Late Childhood and Early Adolescence

A central premise in the theory of generative grammar is that an adequate grammar must account for sentences acceptable to the native speaker (Chomsky, 1961). That is, if the native speaker judges a sentence to be acceptable or admissable in English, then an adequate model or grammar of English must contain a rule for generating that sentence. As a result of the theoretical importance of judgments of acceptability of sentences, psycholinguists have directed some attention to factors which affect whether sentences are considered to be acceptable as well as to be grammatical. Two recent experiments, with adult Ss, have demonstrated that training in generative grammar (Spencer, 1973) and experience in teaching sentence diagramming (Hoenigmann and Wildemann, 1976) facilitate judgments of acceptability and grammaticality, respectively.

The present study was an investigation of children's judgments of the acceptability of sentences with a complex grammatical structure violating the Minimum Distance Principle (cf. Rosenbaum, 1967), and of the effects of their role expectations on these judgments. Additionally, developmental trends were examined: participants were tested twice, with a 1-year interim.

METHODOLOGY

This research was conducted in 2 phases, with 12 months intervening. Furthermore, each phase in the data collection involved 2 steps. First, Ss were interviewed individually to identify their expectations, or social stereotypes, regarding particular groups of people: mothers, fathers, boys,

girls, and teachers. Specifically, Ss were asked who would be the most likely agent to carry out tasks such as housework, e.g., washing windows, making beds; activities associated with the school day, e.g., drawing a picture, going outside to play; and leisure-time activities, e.g., climbing trees, shooting a squirtgun. The second part of each data collection involved asking Ss to evaluate the acceptability of 10 sentences, all with the same syntactic structure. Five of the sentences were constructed to reflect Ss' expectations ("harmonious"), and 5 of the sentences were constructed to contradict Ss' expectations ("contrary"). That is, all 10 sentences were, in fact, grammatically correct, and all had the same grammatical or syntactic structure. However, harmonious sentences contained messages that agreed with Ss' expectations (e.g., The girl promises the mother to make the bed), whereas contrary sentences contained messages that ran counter to Ss' expectations (e.g., The father promises the boy to shoot the squirtgun). The same 10 sentences served as stimulus materials both years.

Population and Sample

The population for this study consisted of male and female children in grades 4 through 8 (during year 1) attending 2 public elementary schools, a junior high school, a parochial school, and, during year 2, also a public high school in the same geographic and socio-economic region of a suburban centralized school district. Residents of this community are speakers of standard English.

A sample of 12 was drawn from each of the 5 grades; all 60 participants were still available a year later.

For ease of discussion, those Ss in grade 4 during year 1 will be identified as group A, those in grade 5 as group B, those in grade 6 as group

C, those in grade 7 as group D, and those in grade 8 as group E.

Procedures

Identical procedures were followed both years. All experimental materials were individually administered. During the assessment of expectations, Ss were asked to respond according to what they thought was most common, i.e., according to which agent usually carried out each action. Hence, there were no "wrong" answers. In the second part of each data collection, E read each sentence aloud, asked a question measuring comprehension of each sentence, and then instructed the Ss to evaluate the sentences according to whether they "sounded right" in terms of resembling everyday speech.

Design

The fact that comprehension was well established was validated both years. During year 1, 7 errors occurred in the 600 measures, and during year 2, only 4 errors of comprehension were made. Because there was essentially no variability in the comprehension scores, this factor was not included in the statistical analysis. The resulting design was a 5 x 2 x 2 (group by expectation by year) repeated measures ANOVA, with the criterion being the number of harmonious and contrary sentences judged to be acceptable each year by Ss in the 5 groups.

RESULTS

All 3 main effects were statistically significant sources of variance. The mean number of harmonious sentences judged to be acceptable was higher than the mean number of contrary sentences accepted (means = 2.87 and 1.38, respectively), $F(1, 110) = 36.28$, $p < .001$. Fewer of the 10 items were accepted during year 2 (mean = 1.88) than during year 1 (mean = 2.37), $F(1, 110) = 8.69$, $p < .005$[4]. The main effect due to group was also significant,

$F(4, 110) = 3.62$, $p < .01$. Tukey's A procedure (Winer, 1971) was employed to investigate significant differences among group means, disclosing that the means of groups A, B, and C fell within the same critical range, and were,

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Insert Figure 1 about here

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therefore, homogeneous with each other. All 3 were significantly different from the means of groups D and E, which were also homogeneous. That is, the mean number of sentences judged to be acceptable by the 3 younger groups was significantly higher than the mean number of sentences judged to be acceptable by the 2 older groups.

One interaction reached the .05 level of significance. The expectation by group interaction, $F(4, 110) = 2.63$, was investigated using Tukey's A procedure, disclosing that the means of groups A, B, and C on harmonious items were homogeneous with each other and were significantly higher than all other means, which also fell with a single critical range.

Insert Figure 2 about here

No interaction in which year was an effect was significant, meaning that the basic patterns manifested in Ss' responses were essentially the same both years.

DISCUSSION

The result that is of the greatest interest theoretically is that the mean number of sentences judged to be acceptable was inversely related to Ss' age. That is, as Ss mature during late childhood and early adolescence, they

accept fewer of the sentences of this particular syntactic structure as "sounding right." It is important to note that this significant trend was unrelated to comprehension, since comprehension was fully established among the Ss both years. There were no significant age differences in comprehension, as there were in judgments of acceptability; therefore, neither type of response was a predictor of the other.

It appears, then, that the processes involved in comprehending sentences of this particular surface structure may be less complex than the processes involved in judging acceptability. Evaluating whether the stimulus items "sound right" is a meta-linguistic process requiring that the Ss consider 3 types of constraints: (1) syntactic constraints, i.e., whether the structure is correct; (2) semantic constraints on the appropriate use of the word promise, i.e., whether it is correctly used to express an agreement to carry out the actions described in the sentences; and (3) cognitive constraints on the appropriate agent in the sentences, i.e., whether the agent/action match is probable.

Thus, it may be a sign of growing linguistic maturity to find aspects of the stimulus sentences not quite acceptable. In fact, it is possible that older Ss were demonstrating an increasing sensitivity to the subtleties of appropriate language use. As an example, one of the contrary sentences that was frequently rejected was, The father promises the boy to shoot the squirt-gun. Ss who were aware that one of the implications of the word promise is solemnity might have rejected that sentence on the basis of inappropriate use of the word.

It should also be recalled that the difference between the harmonious and contrary sentences generally decreased with the increasing age of the Ss.

Since this was concomitant with an overall decrease in the mean number of sentences accepted, it would indicate that factors other than expectation are assuming greater importance in affecting judgments of acceptability. Further, more refined, research is needed to investigate developmentally the relative importance of the 3 types of constraints involved. In controlling for the effects of expectation, the present research isolated one particular variable influencing judgments of acceptability. It is clear that the decision regarding acceptability, which might appear to require only a judgment about whether the syntax of a sentence is correct, is, in practice, complicated by non-syntactic factors such as role expectations.

The results of this study prompt a reconsideration of what is meant by "mastery" of a linguistic structure. Often in studies of child language, mastery is operationally defined as the processes of imitation, comprehension, or production. It might be advisable to include more sophisticated processes such as judging a syntactic structure as acceptable in a richer definition of mastery. However, here the youngest Ss were the most "accepting." If judging sentences acceptable were included among the types of processes constituting mastery, then the present results would have to be interpreted as a sign of linguistic "regression." In order to clarify this issue, adult judgments of the acceptability of this type of sentence will be needed. Perhaps decisions regarding acceptability will follow a U-shaped curve reflecting increased hypothesis-testing during adolescence. Rather than suggesting "regression," the results of such research would indicate growth in metalinguistic abilities.

Finally, the notion that native speakers may have innate knowledge of grammar, against which to compare sentences when judging whether those

sentences are well-formed must be rejected on the basis of the present results. The fact that not all of the stimulus items were accepted, although they were grammatically correct, reflects the lack of an absolute standard of acceptability based on syntax. The results do, however, support a more process-oriented approach to understanding both the language acquisition system and knowledge of grammar. In a process-oriented view, the task of the person developing facility in the language is seen as "abstracting an implicit model of the language from his observations" (Reber, 1973, p. 293). To judge a syntactically correct sentence as unacceptable is to demonstrate an awareness that syntax is neither the only nor even the decisive factor in whether a sentence is well-formed. It follows, then, that the individual is including non-syntactic factors in his or her model of language. The present results indicate that adolescents' models of language give more importance to non-syntactic factors than do the models of children. If this is the case, then the knowledge of grammar one must have in order to judge sentence acceptability is gradually expanded and refined. Accordingly, the definition of a grammar as a set of rules which will generate sentences acceptable to the native speaker should also take into account semantic and cognitive factors yet to be fully specified, but including such variables as expectation.

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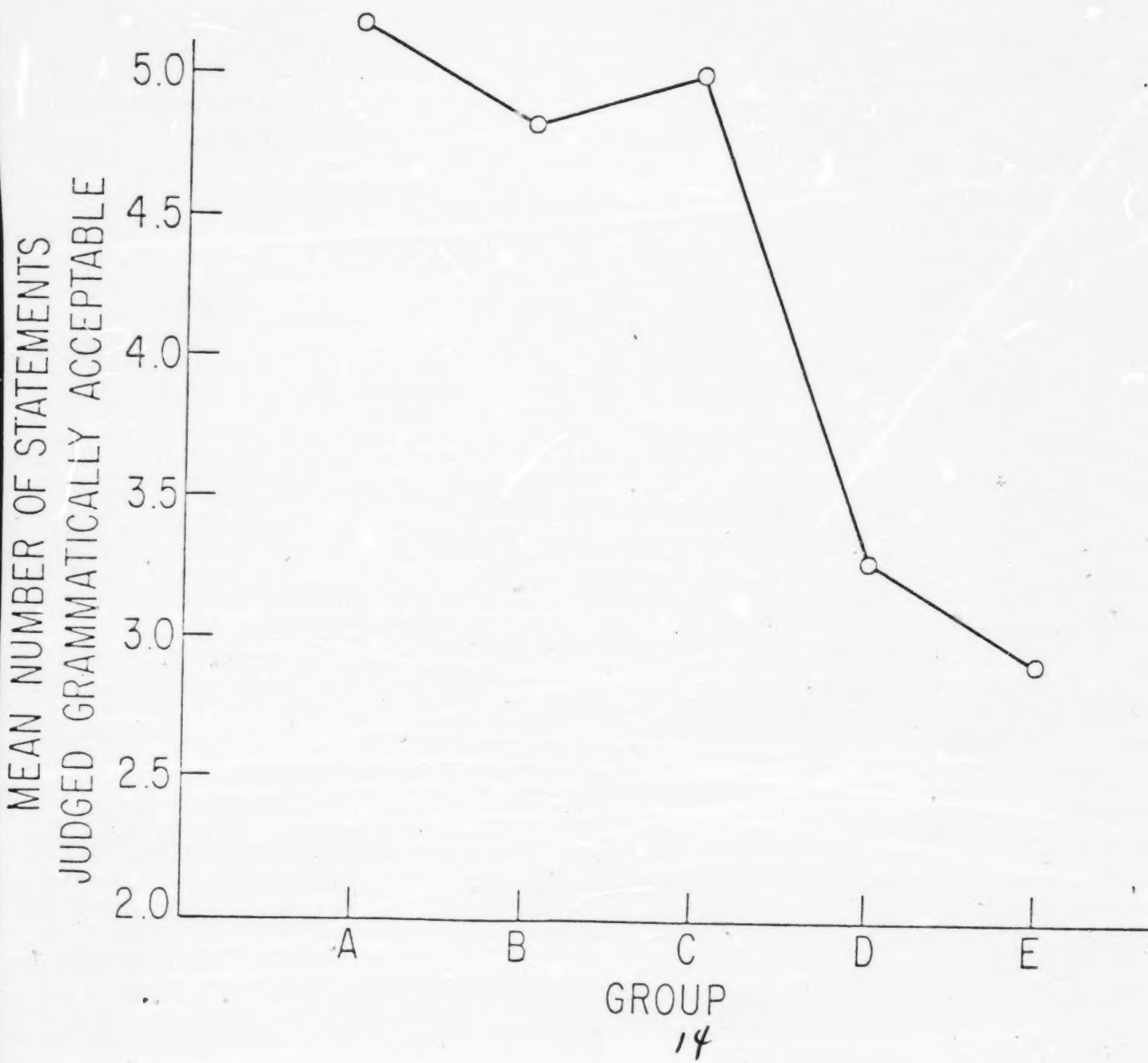
FOOTNOTES

1. Requests for reprints should be addressed to Cheryl J. Gowie, Curry 109, UNC-G, Greensboro, North Carolina 27412.
2. The data collection during year 1 was supported in part by a grant to the senior author from the Excellence Fund of the University of North Carolina.
3. The authors appreciate both the cooperation of St. Pius X School, Loudonville, New York and of North Colonie Central Schools, Newtonville, New York, and the commitment to educational research expressed by their administrators.
4. The results of the analysis of responses during the first year are discussed more extensively in Gowie (1977).

Figure Captions

Figure 1. Main effect due to group

Figure 2. Group by expectation interaction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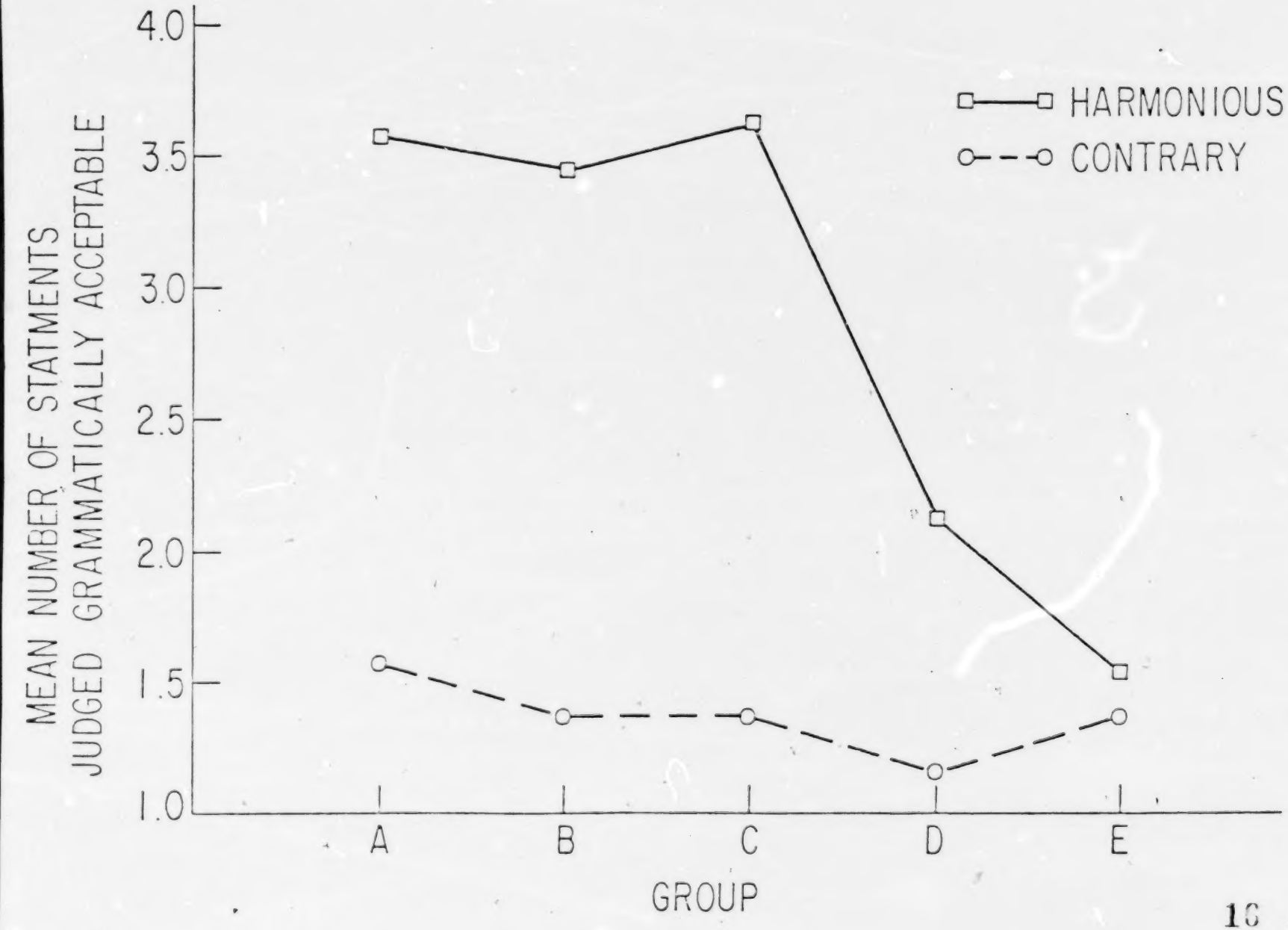
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